

STATE OF CALIFORNIA
Department of Transportation Specification
WHITE TINTABLE FINISH PAINT
(Waterborne Formula PWB-164B)

SCOPE

This specification covers a pre-mixed waterborne paint formulated for use as a finish coat on properly prepared metal surfaces.

This coating is intended for spray application. Limited application can be made by brushing and rolling.

REQUIREMENTS

General:

This specification is intended to specify paint that will meet service requirements for bridge construction and maintenance. All properties listed shall be maintained for a minimum of one year after acceptance. If the vendor is making this paint for the first time, the Transportation Laboratory in Sacramento must be consulted.

Materials:

The raw materials for use in the paint formula shall conform to the specifications designated or paint material code number hereinafter specified.

QUALITY ASSURANCE

The inspection, sampling, testing, packaging and marking of the coating shall comply with State of California Specification 8010-XXX-99, *Coatings, Protective, Quality Assurance Requirements*.

Unless otherwise permitted by the Maintenance Engineer, paint shall be sampled at the place of manufacture and application will not be permitted until the paint has been approved by the Maintenance Engineer. Raw materials and copies of batch records used in the manufacture of the paint shall be submitted as requested by the Maintenance Engineer.

All tests will be conducted in accordance with the latest test methods of the American Society for Testing and Materials, Federal Test Method Standard No. 141, and methods in use by the Transportation Laboratory.

Patents:

The contractor shall assume all costs arising from the use of patented materials, equipment, devices, or processes used on or incorporated in the work, and agrees to indemnify and save harmless the State of California, and its duly authorized representatives from all suits at law or action of every nature for, or on account of, the use of any patented materials, equipment, devices, or processes.

STATE OF CALIFORNIA
Department of Transportation Specification
WHITE TINTABLE FINISH PAINT
(Waterborne Formula PWB-164B)

Description

This specification covers a white, tintable, waterborne paint formulated for use as a finish coat on properly prepared metal surfaces.

This coating is intended for spray application. Limited application can be made by brushing or rolling.

Composition

Paint shall be mixed in the following proportions and sequence:

<u>Component</u>		<u>Weight percent</u>	<u>(LB/100 gallons)</u>
Water		5.3	53.0
Dispersant	(1)	0.54	5.4
Surfactant	(2)	0.20	2.0
Thickener	(3)	0.10 to 0.20	1.0 to 2.0
Defoamer	(4)	0.10	1.0
Preservative	(5)	0.10	1.0
2-(2-Methoxyethoxy)ethanol		3.00	30.0

Dilute thickener with a portion of 2-(2-Methoxyethoxy)ethanol and add in small increments to adjust grind viscosity; add remainder after letdown.

Do not exceed 38°C (100°F) during this operation.

Titanium Dioxide	(6)	15.0	150
Calcium Carbonate	(7)	5.0	50

When color paints are specified, color pigments* may be substituted for titanium dioxide to achieve required color. When substituting, physical characteristics of the coating shall remain within specified limits, except that pigment concentration, when measured as specified, may deviate from requirements if organic pigments are used.

Let down paste slowly:

Styrenated Acrylic Emulsion	(8)	57.5	575
Coalescing Solvent	(9)	6.5	65
Ammonium Hydroxide (28%) (add as necessary to adjust pH)		≅ 0.2	≅ 2.0
Water (add as necessary to adjust nonvolatile content and viscosity)		6.5	65

- ★ **Dry color pigments shall be used if it is necessary to replace more than 30% of the titanium dioxide in order to match a specified color. Pigments selected shall be compatible, light-fast, and alkali resistant. Pigment dispersions shall be glycol-free. They shall be selected so as to not adversely affect the coating formulation and shall not contain lead, chromium or zinc.**

Characteristics

Density, grams per milliliter, ASTM D-1475	1.17 to 1.21
Pigment by weight of paint, percent, ASTM D-3723	17.0 to 21.0
Nonvolatile content, weight percent, ASTM D-2369, Procedure B	46.0 to 49.5
Nonvolatile content, volume percent, ASTM D-2697	36.0 to 38.0
Fineness of grind, Hegman, ASTM D-1210	6 minimum
Contrast ratio, ASTM D-2805, 150 μm clearance applicator	0.98 minimum
pH	8.0 to 9.0
Consistency, ASTM D-562, grams (Equivalent KU)	175 to 225 (77 to 86)
High-shear viscosity, ASTM D-4287, 0 to 5-P cone, shear rate 12 000 s^{-1}	0.5 P maximum
Drying time, 100 μm wet film, ASTM D-1640	
set to touch, hours	1 maximum
dry through, hours	2 maximum
(1) Tamol [®] 165 (Rohm and Haas Company)	
(2) Surfynol [®] 104A (Rohm and Haas Company)	
(3) Acrysol [®] RM-825 (Rohm and Haas Company)	
(4) Bubble Breaker [®] 3056A (Witco)	
(5) Proxel [®] GXL (Zeneca)	
(6) ASTM D-476, Type IV	
(7) 98% minimum CaCO_3 having an average particle size of 5 μm or less, a maximum particle size of 25 μm and containing no less than 80% particle size of less than 10 μm . Oil absorption (ASTM D-281) shall be less than 22.	
(8) Aquamac 700 (McWhorter, Inc.) or EPS 2504 (Engineered Polymer Solutions, Inc.)	
(9) 2,2,4-Trimethylpentanediol-1,3-monoisobutyrate	